In the Specification

Replace paragraph [0033] with the following:

FIG. 3 depicts a loop storage system architecture. System 300 comprises host 302, disc array controller 304, bus 306, and drive array 308. Disc array controller 304 is connected to host 302 by one or more buses. Bus 306 serially interconnects disc array controller 304 and each of the drives of drive array 308 in a loop. Disc array controller 304 and each drive of drive array 308 have on input port and an output port ~~to~~ connected to form the loop of bus 306. The system of FIG. 3 can continue to operate if a disc failure occurs that does not affect bus operation. The failure of the bus, controller, or a disc failure that interrupts bus operation results in loss of data availability, requiring repair of the bus, controller, or disc drive, or installation of drives in another fixture to access data.

Replace paragraph [0035] with the following:

FIG. 5 depicts a storage system architecture employing switchable dual-ported disc drives. System 500 comprises host 502, disc controller "A" 504, disc controller "B" 506, disc controller "C" 508, switch control 510, bus "A" 520, bus "B" 522, bus "C" 524 and a plurality of drive/switching units beginning with drive/switching unit 512 and ending with drive/switching unit 526. Embodiments are not limited to a specific number of drive/switching units. Drive/switching unit 512 comprises dual ported drive 514, first switching device 516 connected to a first port of drive 514 and second switching device 518 connected to a second port of drive 514. Switching device 516 allows the first port of drive 514 to be connected to bus "A" 520, bus "B" 522, or bus "C" 524. Similarly, switching device 518 allows the second port of disc drive 514 to be connected to bus "A" 520, bus "B"

522, or bus "C" 524. Switching devices are controlled through switch control 510 which may comprise control logic, a bus interface, such as 12C, for example, or other circuitry that allows host 502 to control the function of each switching device. Alternatively, switch control 510 may be connected to one or more disc controllers or one or more buses. Disc controller "A" 504, disc controller "B" 506, and disc controller "C" 508 are connected to host 502 by one or more buses and are dual ported ~~that~~ so that they each provide two disc drive buses. Buses 520-524 are each connected to two ports of different disc controllers of disc controllers 504-508 in a manner such that all buses remain operational in the event of a failure of one disc controller that does not corrupt a bus. In another embodiment of the architecture of FIG. 5, switching devices connected to a first port of each disc drive are controlled by a first switch control and switching devices connected to the second port of each drive are connected to a second switch control. The first and second switch controls can be controlled directly by the host, can be controlled by the host through one or more disc controllers connected to the switch controls, or can be controlled by one or more disc controllers. Switching devices may be employed to connect drive ports to one of the buses or may be employed to isolate the port from all buses. Switching devices may comprise any devices configurable to provide the described function including switches, multiplexers, port controllers, cross-point switches, fabrics, etc.

Replace paragraph [0037] with the following:

FIG. 6 depicts a loop-bypass storage system architecture. System 600 comprises host 602, disc controller 604, switch control 606, drives 608-616, switching devices 618-626 and bus 630. Disc controller 604 is connected to host 602 by one or more buses. Bus 630 serially

connects disc controller 604 to each switching device of switching devices 618-626 ~~that each~~ to either serially connect an associated drive to bus 630 or bypass the drive. When all switching devices are enabled, all drives are serially connected. Switching devices may be controlled by host 602 through switch controller 606 or by disc controller 604. The architecture depicted in FIG. 6 allows disc connections to be individually bypassed such that in the event of a disc failure, or a disc failure that affects bus operation, the failed drive may be bypassed and the system may continue to operate. Switching devices 618-626 may be any type of devices capable of serially connecting or bypassing discs. Switching devices 618-626 and switch control 606 may be implemented as a single unit. Switching devices 618-626 and switch control 606 may comprise a port bypass controller.

Replace paragraph [0038] with the following:

Loop bypass methods may be employed to isolate one or more drives. More than one drive may be connected to each port of a port bypass controller. FIG. 7 depicts a loop bypass storage system with two drives connected to each bypass controller port. System 700 comprises host 702, disc controller 704, disc drives 706-724, port bypass controller 726, and bus 728. Drives are arranged in pairs such that drives 706,708 are connected to a first port of port bypass controller 726, drives 710,712 are connected to a second port, drives [[714-716]] 714, 716, are connected to another port, drives 718,720 are connected to yet another port, and drives 722,724 are connected to still another port. Bus 728 connects disc controller 704 to port bypass controller 726. In an alternative embodiment, two buses may connect the disc controller and port bypass controller, providing redundancy in the event of a bus failure. Any or the ports of port bypass controller 726 may be configured to allow signals to pass through

the two drives connected to the port or to bypass the port, providing isolation in the event of a drive failure, or drive failure that corrupts the bus. While FIG. 7 depicts two drives connected to each port of port bypass controller 726, more than two drives may be connected within the scope of the present invention. While FIG. 7 employs a port bypass controller, any devices and configuration thereof that produce the described function may be employed.

Replace paragraph [0040] with the following:

Two or more dual ported disc drives may be connected to each port of a port bypass controller. FIG. 9 depicts a loop bypass storage system with two dual ported drives connected to each port of a port bypass controller. System 900 comprises host 902, disc controller 904, bus 906, port bypass controller 908, disc drives 910-928, disc controller 930, bus 932, and port bypass controller 934. Disc controller 904 and disc controller 930 are connected to host 902 by one or more buses. Disc controller 904 is connected to port bypass controller 908 through bus 906. Disc controller 930 is connected to port bypass controller 934 through bus 932. Disc drives 910-928 are dual ported and each drive has a first port connected to port bypass controller 908 and a second port connected to port bypass controller 934. In an alternative embodiment, disc controller 904 is also connected to port bypass controller 934 and disc controller 930 is also connected to port bypass controller 908. Port bypass controllers 908 and 934 are individually configurable to provide a connection to a disc drive port or to bypass a connection to a disc drive, allowing each disc drive to be isolated in the event ~~of~~ of a drive failure or a failure that corrupts the port connection. Since disc drives are dual ported and two port bypass controllers are employed, the system of FIG. 9 provides continued operation in the event of a disc controller failure, bus failure, or disc drive failure.

Replace paragraph [0042] with the following:

FIG. 11 depicts another multi-path redundant storage system. System ~~1000~~ 1100 comprises system interface 1102, system bus "A" 1104, system bus "B" 1106, interface controller "A" 1108, interface controller "B" 1110, interface bus "A" 1112, interface bus "B" 1114, disc controller "A" 1116, disc controller "B" 1118, fabric bus "A" 1120, fabric bus "B" 1122, fabric "A" 1124, fabric "B" 1126, fabric control bus "A" 1128, fabric control bus "B" 1130, and drive groups 1132-1140. Interface controller "A" 1108 and interface controller "B" 1110 connect to a system through system bus "A" 1104 and system bus "B" 1106. The two system buses provide redundant communication paths, allowing continued communication with both interface controllers in the vent that one of the system buses fails. Interface controller "A" 1108 and interface controller "B" 1110 connect to disc controller "A" 1116 and disc controller "B" 1118 through interface bus "A" 1112 and interface bus "B" 1114 that allow continued communication between either interface controller and either disc controller in the event that one of the interface buses fails. Disc controller "A" 1116 and disc controller "B" 1118 are connected to fabric "A" 1124 and fabric "B" 1126 through fabric bus "A" 1120 and fabric bus "B" 1122, providing continued communication between either disc controller and either fabric in the event that one of the fabric buses fails. Fabric control bus "A" 1128 and fabric control bus "B" 1130 provide redundant control paths from interface controller "A" 1108 and interface controller "B" 1110 to fabric "A" 1124 and fabric "B" 1126 and allow configuration of either fabric by either interface controller in the event that either fabric control bus fails. Fabric "A" 1124 is connected to each drive group of drive groups 1132-1140 by separate connection. A drive group comprises one or more drives connected to a

fabric by one connection. Drives in the drive groups are dual ported. Fabric "B" 1126 is connected to each drive group of groups 1132-1140 by separate connection. Fabric "A" 1124 connects to one port of the dual ported drive or drives comprising each drive group and fabric "B" 1126 connects to a second port of the dual ported drive or drives comprising each group. The duality of system buses, interface buses, fabric buses, fabric control buses, and drive group connections provides isolation or a redundant path for every data path in the system. The duality of interface controllers, disc controllers, and fabrics, in conjunction with the duality of buses, provides continued operation in the event of a failure of an interface controller, disc controller, or fabric. As such the system depicted in FIG. 11 has no single point of failure relative to buses, controllers, or fabrics.